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THIRTY NEW MICE OF THE GENUS *PEROMYSCUS*
FROM MEXICO AND GUATEMALA.

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The mice of the genus *Peromyscus*, so well represented in the United States and so well known for their numerous specific and subspecific variations, reach their highest development south of our borders in Mexico. This is the region of their greatest abundance, both in actual numbers and in specific types. Some are closely related to forms found in the United States, but the majority are entirely different.

The thorough work of E. W. Nelson and E. A. Goldman in this region has resulted in the acquisition of very large numbers of specimens of this genus, and now for the first time it is possible to learn the number and diversity of their specific and subspecific forms. Specimens of *Peromyscus*, from Mexico and Guatemala alone, to the number of nearly 3,400, are now in the collection of the U. S. Biological Survey. This is unquestionably in excess of the combined number in all other collections in the world, and it is therefore not surprising that a comparatively large number of new forms should be found among them.

The descriptions herewith are presented in advance of a revision of the entire genus, now in preparation, in which it is hoped that all the known forms may be fully discussed.

I take pleasure in making acknowledgments to Dr. C. Hart Merriam, to whom I owe the opportunity of elaborating this

rich material and to whom I am indebted for much valued criticism and advice. It was also my privilege to be somewhat associated with Dr. Merriam during his preparation of a preliminary paper on the same group several years ago,* an experience which is now of the utmost value to me. During the work I have been greatly assisted by Mr. Nelson, and the advantage of having at my disposal his intimate knowledge of the physiographic conditions of Mexico has been much appreciated.

Subgenus **Peromyscus** Gloger.

Peromyscus sonoriensis blandus subsp. nov.

Type from Escalon, Chihuahua, Mexico. Adult female, No. 57,635, U. S. National Museum, Biological Survey Collection, November 27, 1893, E. A. Goldman.

Characters.—Similar to *P. sonoriensis*,† but smaller; tail shorter (usually less than 75); color more vinaceous.

Color.—Type, in full winter pelage: Upper parts vinaceous buff, uniformly sprinkled with dusky; a narrow lateral line of vinaceous buff; lanuginous ear tufts conspicuous, mixed white and buff; under parts creamy white; ears chiefly whitish with a wide dusky area on flexure; tail sharply bicolor; feet white, ankles with traces of dusky and buffy.

Skull.—Similar to that of *sonoriensis*, but somewhat smaller; nasals averaging wider, particularly at their posterior ends.

Measurements.—Type: Total length, 145; tail vertebrae, 61; hind foot, 21. Average of seven adult topotypes: 161; 69; 21.4. Skull of type: Greatest length, 25.4; basilar length of Hensel, 19.7; zygomatic width, 12.5; interorbital constriction, 4; interparietal, 8 x 1.9; nasals, 9.8 x 2.5; bony palate, 3.5; palatine slits, 5.7 x 2; diastema, 6.7; postpalatal length, 9.1; upper molar series, 3.8.

Remarks.—This is the common short-tailed mouse of northeastern Mexico. The limits of its range have not yet been thoroughly worked out, but it is represented from numerous localities in Mexico east of the Sierra Madre and extends north to western Texas. It is easily distinguished from *P. texanus* of the same region by numerous characters, among which may be mentioned the following: Size smaller; tail shorter; color more vinaceous; pelage softer; subauricular spots more prominent and nearly always extensively white; nasals broader and flatter; premaxillæ less swollen laterally; braincase smaller. Its vinaceous color and small size distinguish it from *sonoriensis*, which is found chiefly west of the Sierra Madre.

*These Proceedings, Vol. XII, pp. 115–125, April 30, 1898.

†Nos. $\frac{20602}{35762}$ and $\frac{20703}{35860}$ U. S. N. M., from Santa Cruz River, Sonora, have been used to represent *P. sonoriensis*.

***Peromyscus sonoriensis fulvus* subsp. nov.**

Type from Oaxaca City, Oaxaca, Mexico. Adult male, No. 68,655, U. S. National Museum, Biological Survey Collection, June 12, 1894, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. sonoriensis*, but color darker and more rufescent; skull with anterior part of zygoma heavier and more deeply notched by infraorbital foramen.

Color.—General color of upper parts russet, deepening in middle of back to mars brown and Prout's brown; under parts creamy white; ear tufts prominent, buffy or pale creamy; tail sharply bicolor, brown above, white below; feet and forelegs white; outer side of ankles brownish.

Skull.—Similar to that of *P. sonoriensis* but more angular; anterior part of zygoma heavier and more deeply notched by infraorbital foramen; similar to that of *P. labecula* but smaller and shorter; zygomata not so heavy nor so broadly expanding anteriorly; nasals rather short and broad.

Measurements.—Type: Total length, 167; tail vertebrae, 68; hind foot, 22. Average of 10 adults from Chalchicomula, Puebla: 162 (150–183); 71.5 (65–78); 22. Skull of type: Greatest length, 25; basilar length of Hensel, 19.5; zygomatic width, 12.8; interorbital constriction, 4; interparietal, 8 x 2.1; nasals, 10; bony palate, 3.7; palatine slits, 5.6 x 2; diastema, 6.5; postpalatal length, 8.7; upper molar series, 3.8.

Remarks.—*P. s. fulvus* is the southernmost representative of the well-known *sonoriensis* group of small short-tailed mice. It is found from Oaxaca north to Puebla and parts of Vera Cruz and Hidalgo. Its near relatives are *P. s. blandus* and *P. s. labecula*.* In general terms, *blandus* is small and vinaceous, *fulvus* is medium sized and rufescent, and *labecula* is large and more inclined to duskiness. The intergradation of all three and their connection with typical *sonoriensis* are scarcely to be doubted.

***Peromyscus texanus mesomelas* subsp. nov.**

Type from Orizaba, Vera Cruz, Mexico. Adult male, No. 58,210, U. S. National Museum, Biological Survey Collection, January 20, 1894, E. W. Nelson and E. A. Goldman.

Characters.—Most similar to *P. t. nearusi*; color darker; tail shorter; hind foot larger; a small pectoral spot present; adolescents with an intense black dorsal stripe.

Color.—Adult: General effect of upper parts pale Prout's brown, produced by fawn ground color with a liberal mixture of dusky; sides practically unicolor with back; no definite dusky markings about head; under parts creamy white except a small but distinct pectoral spot of fawn color; ears dusky with whitish edges; feet white, ankles dusky

* Elliot, Field Col. Mus., Zoöl. Ser., III, pp. 143–144, March, 1903.

brownish; tail bicolor. Immature: Similar in general to adult, but more sooty; sides dark mouse gray, tinged with fawn and bordered by a narrow fawn-colored lateral line; a broad stripe in median dorsal region intense black; ankles sooty; tail indistinctly bicolor.

Skull.—Similar to that of *P. t. mearnsi*, but with braincase averaging slightly larger and wider; nasals rather long and palatine slits usually corresponding.

Measurements.—Type: Total length, 169; tail vertebrae, 76; hind foot, 23. Skull of type: Greatest length, 26.5; basilar length of Hensel, 20.2; zygomatic width, 13.6; interorbital constriction, 4; interparietal, 8.6 x 2.3; nasals, 10.4; bony palate, 3.8; palatine slits, 5.2 x 2; diastema, 6.9; postpalatal length, 9.1; upper molar series, 3.7.

Remarks.—Although this form is very well characterized, there seems to be no doubt that it is connected, through *P. t. mearnsi*, with *P. texanus* and others of the same group. Specimens from Río Verde, San Luis Potosi, are quite evidently intermediate, and a series from Metlatoyuca, Puebla, while distinctly referable to *mesomelas*, shows some tendencies toward *mearnsi*. *P. mesomelas* is also related to *P. affinis*, which is a much paler form and not apt to be confused with it. Like *mearnsi* and *affinis*, it has short and relatively harsh pelage somewhat different from that of most other Mexican species.

***Peromyscus texanus castaneus* subsp. nov.**

Type from vicinity of Yohaltun, Campeche, Peninsula of Yucatan, Mexico. Adult male, No. 107,980, U. S. National Museum, Biological Survey Collection, December 19, 1900, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. t. mesomelas*, but smaller and more ferruginous colored; under parts without pectoral spot; adolescents without black dorsal stripe; skull and teeth small.

Color.—Type, in fresh pelage: General color of upper parts between Prout's brown and burnt umber, clearer on sides, darker on back; ground color rich dark fawn; no definite lateral line; under parts pure white; feet white, ankles brownish. Topotype No. 107,982, in slightly worn pelage: Sides and upper parts nearly uniform cinnamon rufous with scarcely any dusky admixture and only a narrow line on back somewhat deeper colored than rest of upper parts. Immature: As in adult but grayer.

Skull.—Rather small and light; braincase relatively narrow; nasals and palatine slits short; molar teeth small; otherwise similar to *P. t. mesomelas*.

Measurements.—Average of 10 adult topotypes: Total length, 163 (156–169); tail vertebrae, 73 (68–79); hind foot, 21.5 (20–22). Skull of type: Greatest length, 25.3; basilar length of Hensel, 19; zygomatic width, 13; interorbital constriction, 4; interparietal, 8 x 2.3; nasals, 9.3; bony palate, 4; palatine slits, 4.2 x 1.9; diastema, 6.2; postpalatal length, 9.5; upper molar series, 3.5.

Remarks.—*P. t. castaneus* is nearly the same color as *P. cozumelæ*, which is closely related. *P. cozumelæ* differs chiefly in larger size and heavier teeth. No specimens from the humid tropical region between Orizaba and Yohaltun are at hand, but *castaneus* is not sufficiently different from *mesomelas* to warrant full specific rank. *P. affinis* is a related form of the adjacent arid tropics, and much paler than either *castaneus* or *mesomelas*.

***Peromyscus melanotis zamelas* subsp. nov.**

Type from Colonia Garcia, Chihuahua, Mexico (altitude 6700 feet). Adult female, No. 98,197, U. S. National Museum, Biological Survey Collection, July 23, 1899, E. W. Nelson and E. A. Goldman.

Characters.—Similar in general to *P. melanotis* but coloration more sooty; size small; tail short; skull not peculiar.

Color.—Sides dark cinnamon rufous, densely clouded with sooty; broad stripe from top of head to base of tail intense black; orbital ring and base of whiskers black; sides of face suffused with sooty; a cinnamon rufous patch below eye continuous with a narrow lateral line of the same color; feet white; tail sharply bicolor, black above, white below; under parts white subdued by plumbeous under-color.

Skull.—Practically as in *melanotis*; size quite small; molar teeth particularly small.

Measurements.—Type: Total length, 160; tail vertebræ, 63; hind foot, 20. Skull of type: Greatest length, 25.9; basilar length of Hensel, 19.3; zygomatic width, 13; interorbital constriction, 4; interparietal, 8 x 2.2; nasals, 11; bony palate, 3.8; palatine slits, 5.3 x 2.1; diastema, 7; post-palatal length, 8.5; upper molar series, 3.3.

***Peromyscus attwateri pectoralis* subsp. nov.**

Type from Jalpan, Queretaro, Mexico. Adult male, No. 81,236, U. S. National Museum, Biological Survey Collection, August 30, 1896, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. attwateri*, but richer colored and having a prominent buffy pectoral spot; tail longer; size medium (hind foot 21–23); superficially similar to *P. eremicus*; color darker and more vinaceous; pelage slightly less silky; tail longer and more hairy; soles of hind feet naked or with slight hairiness on heel; ankles usually white; skull rather heavy; molar teeth with small accessory tubercles of subgenus *Pero-*
myscus.

Color.—Type, in fresh fall pelage: Ground color of upper parts pale ochraceous buff with a thick sprinkling of dusky, producing an effect nearly the shade of wood brown; sides of head behind eyes grayish; a narrow blackish orbital ring; a distinct buffy ochraceous pectoral spot usually present; feet, and in most cases ankles, white; under parts white; tail dusky above, white below.

Skull.—About as in *P. attwateri*; somewhat similar to that of *P. levipes* but smaller, with smaller teeth; lachrymal region less swollen; nasals rather long and broad; zygomata somewhat compressed anteriorly, not elbowed squarely; premaxillæ usually ending beyond nasals; interparietal rather large; audital bullæ quite small, smaller than in *levipes* or *eremicus*.

Measurements.—Type: Total length, 210; tail vertebræ, 114; hind foot, 22. Average of 10 adults from various localities: 200; 112; 21.5. Skull of type: Greatest length, 27; basilar length of Hensel, 19.7; zygomatic width, 13.7; interorbital constriction, 4.2; nasals, 9.9; bony palate, 3.7; palatine slits, 4.9 x 2; diastema, 6.3; postpalatal length, 9.4; upper molar series, 3.8.

***Peromyscus attwateri eremicoides* subsp. nov.**

Type from Mapimi, Durango, Mexico. Adult male, No. 57,729, U. S. National Museum, Biological Survey Collection, December 15, 1893, E. A. Goldman.

Characters.—Similar to *P. attwateri*, but smaller and paler; skull small and light; audital bullæ very small; ears small; soles of hind feet naked.

Color.—Upper parts mixed pinkish buff and dusky, producing the general effect of pale broccoli brown; lateral line pinkish buff; underparts pure creamy white without trace of pectoral spot; facial region between eye and ear grayish; feet and ankles white; tail dusky above, white below. In some specimens, doubtless the younger ones, the general effect is gray, while in others a delicate shade of pinkish buff predominates.

Skull.—Similar in general to that of *attwateri* but decidedly smaller; audital bullæ very small; nasals short; interorbital constriction relatively wide; rostrum depressed.

Measurements.—Type and one topotype: Total lengths, 180; 195; tail vertebræ, 102; 111; hind feet, 20; 21. Skull of type: Greatest length, 24; basilar length of Hensel, 18; zygomatic width, 12; interorbital constriction, 3.9; interparietal, 8.3 x 3; nasals, 8.5; bony palate, 3.5; palatine slits, 4.5 x 1.5; diastema, 5.8; postpalatal length, 8.5; upper molar series, 3.5.

Remarks.—This form is readily distinguishable from both *attwateri* and *pectoralis* by its pale color, small ears, and very small skull. Its resemblance to *P. eremicus*, particularly in immature and worn pelages, is remarkable. The only external characters by which it may be distinguished are its longer, slightly more hairy tail and pure white ankles. Neither of these characters, however, is to be depended upon, as the tail in *eremicus* is often quite hairy, and the dusky on the ankle frequently so little developed as to be scarcely apparent. The molar enamel pattern, except in extremely worn teeth, is always diagnostic, *eremicoides* having the small accessory cusps and *eremicus* being without them.

Specimens examined.—Total number 10, from localities in Mexico as follows: Coahuila, Jimulco, 4; Durango, Inde, 4, Mapimi, 2.

***Peromyscus polius* sp. nov.**

Type from Colonia Garcia, Chihuahua, Mexico. Old female, No. 98,226, U. S. National Museum, Biological Survey Collection, June 26, 1899, E. W. Nelson and E. A. Goldman.

Characters.—Somewhat similar to *P. boylei rowleyi*, but decidedly larger and grayer colored; skull large and stoutly built, with large teeth and relatively small audital bullæ.

Color.—General color of upper parts grayish broccoli brown, produced by a ground color of pinkish buff mixed with dusky; lateral line clear pinkish buff; head slightly more grayish than body, particularly on cheeks; a narrow dusky orbital ring; lanuginous tuft at base of ear occasionally tinged with white; under parts pure white; feet and ankles white; tail bicolor.

Skull.—Similar in general to that of *rowleyi*, but larger; molar teeth decidedly larger; palatine slits longer; audital bullæ actually about same size, relatively smaller; otherwise not peculiar.

Measurements.—Average of 8 adult topotypes: Total length, 218.5 (210–234); tail vertebræ, 117 (111–120); hind foot, 25.8 (25–26). Skull of type: Greatest length, 29.9; basilar length of Hensel, 22.9; zygomatic width, 14.8; interorbital constriction, 4.5; interparietal, 10.5 x 2.8; nasals, 11.6; bony palate, 4.4; palatine slits, 6 x 2; diastema, 7.4; post-palatals length, 10; upper molar series, 4.7.

Remarks.—This species nearly equals *P. difficilis* in size, but its shorter tail and ears readily distinguish it without recourse to the skull, in which the audital bullæ are scarcely more than half the size of those of *difficilis*. Its real relationship is undoubtedly with *rowleyi* and *altwateri*. It is apparently an isolated species, and is not the general Mexican representative of this group, for practically typical *rowleyi* occurs as far south at least as central Zacatecas. Its pure white ankles, as well as its large size and pale color, afford convenient characters for readily recognizing it.

***Peromyscus gratus gentilis* subsp. nov.**

Type from Lagos, Jalisco, Mexico. Adult male, No. 78,937, U. S. National Museum, Biological Survey Collection, June 27, 1896, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. gratus* but paler; sides of head much more fulvous; molar teeth slightly smaller.

Color.—New pelage: Upper parts pale ochraceous buff lightly mixed with dusky; middle of back with a slight concentration of dusky tipped hairs; top of head, ear tufts, etc., with a predominance of buffy; sides of head nearly clear ochraceous buff, with a slight tinge of grayish between eye and base of ear; eyelids black; under parts white; hands and feet white; ankles dusky; tail bicolor, blackish above, white below. Worn pelage: Upper parts varying from clear bright ochraceous buff on back and rump to grayish buff about head and shoulders, sometimes with

a fine mixture of cinnamon tipped hairs throughout; under parts white; tail dusky brownish above, white below.

Skull.—As in typical *P. gratus*, having the same large braincase, short depressed rostrum, and relatively large audital bullæ; molar teeth slightly smaller.

Measurements.—Average of 10 adult topotypes: Total length, 201 (194–210); tail vertebrae, 111.7 (103–120); hind foot, 23.8 (23–24.5). Skull of type: Greatest length, 27.2; zygomatic width, 14; nasals, 9.5; interorbital constriction, 4.4; upper molar series, 4.

Remarks.—Apparently there are two forms of the *P. gratus* type found in Mexico, one very dark with dusky grayish head and cheeks, the other much paler with less dusky or grayish and more ochraceous on the head and cheeks. The extreme of the dark form is shown in a series from Zamora, Michoacan. Typical *gratus* from Tlalpam, Mexico, is unquestionably referable to the dark form, although not so extreme as the specimens from Zamora. The light form, which is therefore named, is most extreme in specimens from Lagos, Jalisco. Various degrees of intergradation are shown by specimens from a number of localities.

***Peromyscus amplus* sp. nov.**

Type from Coixtlahuaca, Oaxaca, Mexico. Adult female, No. 70,158, U. S. National Museum, Biological Survey Collection, November 12, 1894, E. W. Nelson and E. A. Goldman.

Characters.—Most similar to *P. felipensis*, but very much paler; pelage long and soft; color very uniform, with scarcely any dark dorsal area; skull with somewhat inflated braincase.

Color.—Type: General effect of upper parts uniform clay color produced by a ground color of ochraceous buff and a fine 'peppery' mixture of dusky; lateral line rather broad, ochraceous buff; forehead and orbital region from posterior base of whiskers to ear grayish; anterior base of whiskers buffy; under parts creamy white with a well-developed ochraceous buff pectoral spot; feet white, ankles dusky; tail white below, dusky brownish above.

Skull.—Very similar to that of *felipensis*, but braincase slightly higher and more inflated; anterior part of skull depressed; audital bullæ large.

Measurements.—Average of 10 adult topotypes: Total length, 248 (235–260); tail vertebrae, 136 (128–145); hind foot, 27 (26–28). Skull of type: Greatest length, 30.4; basilar length of Hensel, 23; zygomatic width, 10.4; interorbital constriction, 4.5; interparietal, 10.4 x 3.7; nasals, 11.3; bony palate, 4.6; palatine slits, 6 x 2.3; diastema, 7.9; postpalatal length, 10.2; upper molar series, 4.8.

Remarks.—*P. felipensis*, to which *amplus* is related, is essentially a black mouse, whereas the predominating color of *amplus* is ochraceous buff, and except in conditions of fresh new pelage there is scarcely any black. The pelage has a peculiar quality about it which baffles description, but which differs to a certain extent in having less gloss or luster than in most

species. In this respect it approaches a similar condition frequently found in specimens of the *melanophrys* type. It is easily distinguished from *melanophrys* by the absence of any definite supraorbital ridge and by its larger audital bullæ. Its relationship to *difficilis* is by no means remote, but its skull differs in the same respects as that of *felipensis*.

Specimens examined.—Total number, 65, from localities in Mexico as follows: *Oaxaca*, Coixtlahuaca, 16, Marqnes, 5, Tamazulapam, 13; *Puebla*, Chalchicomula, 9; *Tlaxcala*, Apixaco, 2; *Vera Cruz*, Maltrata, 5, Perote, 15.

***Peromyscus bullatus* sp. nov.**

Type from Perote, Vera Cruz, Mexico. Adult female, No. 54,405, U. S. National Museum, Biological Survey Collection, June 3, 1893, E. W. Nelson and E. A. Goldman.

Characters.—Related to *P. truei* and *P. difficilis*; audital bullæ greatly inflated, larger than in any other known species of the genus; external ears very large; tail shorter than head and body.

Color.—Very similar to that of *P. truei*, but richer, more tawny; sides and ground color of upper parts tawny ochraceous; middle of back with considerable dusky producing a broccoli brown effect; top of head and nose broccoli brown; sides of head between base of ear and eye distinctly grayish; a narrow dusky orbital ring; under parts pure creamy white; feet white with a dusky patch on ankle; tail bicolor.

Skull.—Similar in general to that of *P. truei*; smaller than in *P. difficilis*; audital bullæ very much inflated, actually as well as relatively larger than in any other known species of the genus; braincase rounded and somewhat inflated, much as in *truei*; interorbital constriction relatively wider than in *difficilis*; nasals and palatine slits rather long; molar teeth large, actually larger than those of *truei* and nearly equalling those of *difficilis*.

Measurements.—Type: Total length, 200; tail vertebrae, 93 +; hind foot, 23; ear from notch (measured dry), 25. Skull of type: Greatest length, 28.9; basilar length of Hensel, 22; zygomatic width, 14.5; interorbital constriction, 4.5; interparietal, 10 x 3; nasals, 10.4; bony palate, 4.2; palatine slits, 5.8 x 2; diastema, 8.3; postpalatal length, 10; upper molar series, 4.3; greatest diameter of audital bullæ, 6.5.

Remarks.—The relationships of this rather remarkable mouse are clearly with *P. truei* and *P. difficilis*. Its short tail* and light color are sufficient to distinguish it from *difficilis* at a glance, and its enormous audital bullæ separate it at once from *truei*. The external ears are also very large, slightly exceeding those of *difficilis* as well as of all other species. There is only the one specimen in the collection, in spite of the fact that its habitat is in the state of Vera Cruz, where reasonably thorough collecting has been done.

*The tail of the type is not quite perfect, having lost the extreme tip, but it is very evident that it was naturally much shorter than that of *difficilis*.

***Peromyscus spicilegus evides* subsp. nov.**

Type from Juquila, Oaxaca, Mexico. Adult male, No. 71,426, U. S. National Museum, Biological Survey Collection, February 28, 1895, E. W. Nelson and E. A. Goldman.

Characters.—Color as in *spicilegus* except upper side of hind foot, which has a wedge-shaped dusky area extending from ankles nearly to base of toes; skull larger and heavier; teeth much larger.

Color.—Upper parts rich tawny, very slightly mixed with dusky, the dusky somewhat concentrated medially; a narrow black orbital ring and small spot at base of whiskers; under parts creamy white with a small pectoral spot of tawny; tail blackish above, white below; forearm sooty to wrist, hands white; ankle and proximal half of foot sooty except on sides.

Skull.—As in *spicilegus* but larger; molar teeth decidedly heavier.

Measurements.—Average of 5 adult topotypes: Total length, 211; tail vertebræ, 106; hind foot, 25. Skull of type: Greatest length, 29; basilar length of Hensel, 22; zygomatic width, 14.4; interorbital constriction, 4.6; interparietal, 9.3 x 3.2; nasals, 11.5; bony palate, 4.7; palatine slits, 5.6; diastema, 17; postpalatal length, 9.1; upper molar series, 5.

Remarks.—*P. spicilegus* and closely related forms are represented in the Biological Survey Collection by a large number of specimens from nearly all the mountainous parts of Mexico. Among these there is much local and individual variation, and there seems to be no strongly marked tendency to differentiation into forms occupying general areas. The small series from Juquila are markedly larger than *spicilegus*, and this difference in size is emphasized by the skull and teeth. A large series from Los Reyes, Michoacan, appears to be intermediate between *spicilegus* and *evides*.

***Peromyscus spicilegus simulus* subsp. nov.**

Type from San Blas, Tepic, Mexico. Adult male, No. 88,088, U. S. National Museum, Biological Survey Collection, April 18, 1897, E. W. Nelson and E. A. Goldman.

Characters.—Similar in general color to *P. spicilegus*; skull smaller and with decidedly shorter nasals.

Color.—About as in *P. spicilegus*; general color of upper parts cinnamon rufous with a darker dorsal area; under parts white, usually with a small rufous pectoral spot; feet white, ankles dusky; tail usually bicolor, but sometimes not perfectly so.

Skull.—Somewhat similar to that of *spicilegus*, but smaller and more angular; nasals and rostral part of skull decidedly shorter; parietal narrower and less shelf-like; premaxillæ not exceeding nasals; zygomata rather heavy and 'squared' anteriorly; molar teeth very small; bony palate short.

Measurements.—Average of 3 adult topotypes: Total length, 208; tail vertebræ, 111; hind foot, 23. Skull of type: Greatest length, 26.3; basilar length of Hensel, 20.3; zygomatic width, 14; interorbital constriction, 4.1; nasals, 9.4; bony palate, 3.6; palatine slits, 5.6×2 ; diastema, 7; postpalatal length, 9.4; upper molar series, 3.8.

Remarks.—*P. spicilegus* is essentially a mountain animal, and is not usually found except at considerable elevations. Apparently the form from the lowlands of Tepic is its only coast representative. This is well characterized by cranial characters, although it does not differ markedly in color, being possibly a shade darker, but in this respect easily within the variation of the typical form. Specimens from Plomosas, Sinaloa, though referable to *spicilegus*, show some tendency toward *simulus*.

Specimens examined.—Total number, 10, from localities in Mexico, as follows: *Tepic*, Navarrete, 2, Rosario, 2, San Blas, 6.

Peromyscus melanophrys zamoræ subsp. nov.

Type from Zamora, Michoacan, Mexico. Adult male, No. 120,288, U. S. National Museum, Biological Survey Collection, January 20, 1903, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. melanophrys*, but averaging slightly larger and darker; a large tawny pectoral spot present; * skull comparatively broad and heavy, teeth large.

Color.—Similar in general to that of *P. melanophrys*, but apparently somewhat darker, the difference in this respect being very slight if any. Adults with a broad band of tawny across pectoral region between forelegs. Upper side of tail more nearly black than in *melanophrys*.

Skull.—Similar to that of *melanophrys*, but slightly larger and heavier; braincase fuller and broader; audital bullæ larger; supraorbital beads less trenchant and forming ridges rather than shelves anteriorly; molar teeth larger; other characters similar.

Measurements.—Type: Total length, 260; tail vertebræ, 141; hind foot, 29. Average of 7 young adult topotypes: Total length, 259; tail vertebræ, 144; hind foot, 28.4. Skull.—Two adults: Greatest length, 31.3–32; basilar length of Hensel, 25–25.9; zygomatic width, 16.5–16.9; nasals, 12–12; upper molar series, 4.7–4.8; palatine slits, 6.6×2.7 – 7×2.6 .

Remarks.—All the adult specimens of this form thus far examined have the tawny pectoral marking highly developed. The majority of the series from Zamora are adolescents and exceptionally dark. Even those

* The constancy of this character may be doubted, as it is of such irregular occurrence in this genus. In the present case, while not diagnostic, it seems to be a character of importance. Of 76 specimens of *melanophrys* and *consobrinus*, 4 only have pectoral spots, and these are small and indistinct. Of 19 typical specimens of *zamoræ*, all have well-marked pectoral spots except 2 plumbeous young, which have only traces.

that have not passed beyond the plumbeous juvenile pelage are decidedly darker than comparable specimens of typical *melanophrys*. Two adults, however, show only very slightly darker shades than *melanophrys*. Specimens from Zimapan, Hidalgo, are questionably referred to this form, but in cranial characters they approach *consobrinus*. Four specimens from Querendaro seem to be typical *zamora*.

Specimens examined.—Total number, 43, from localities in Mexico as follows: Hidalgo, Zimapan, 24 (aberrant); Michoacan, Querendaro, 4; Zamora, 15.

***Peromyscus melanophrys consobrinus* subsp. nov.**

Type from Berriozabal, Zacatecas, Mexico. Adult female, No. 79,626, U. S. National Museum, Biological Survey Collection, July 10, 1896, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. melanophrys*, but tail slightly shorter; skull with larger audital bullæ and other slight peculiarities.

Geographic distribution.—Southern part of Mexican tableland in the Sonoran zone.

Color.—As in *melanophrys*. Topotype No. 58,028, in full winter pelage (Dec.), has the upper parts and sides tawny ochraceous thickly lined with black to the edge of a narrow tawny lateral line; orbital ring black, sharply contrasting with a grayish area about it which extends from the base of the whiskers around the eye to the anterior base of the ear; under parts creamy white with a very small tawny pectoral spot; tail bicolor, white below, dusky above; feet creamy white, ankles dusky.

Skull.—Similar to that of *melanophrys* but somewhat shorter; nasals shorter and slightly broader; audital bullæ larger; braincase more bulging and less elongate.

Measurements.—Type: Total length, 250; tail vertebræ, 131; hind foot, 26.5. Average of 5 adult topotypes: Total length, 256; tail vertebræ, 135; hind foot, 27.5. Skull of type: Greatest length, 30.8; basilar length of Hensel, 25.3; zygomatic width, 16.3; interorbital constriction, 4.9; nasals, 11.1; upper molar series, 4.7; palatine slits, 6.6 x 2.5; bony palate, 4.4.

Remarks.—This is not a strongly marked subspecies, but its characters, such as they are, have great constancy throughout its range. It is apparently the form of the Mexican tableland, but its distribution may be continuous with that of *zamora* and thence with true *melanophrys*. Specimens from Zimapan, Hidalgo, appear to approach *consobrinus* in cranial characters but retain the coloration of *zamora*.

Specimens examined.—Total number 22 from localities in Mexico as follows: *Agua Calientes*, Chicalote, 1; *Guanajuato*, Silao, 3; *Jalisco*, Colotlan, 1; *San Luis Potosi*, Ahualulco, 1, Hacienda La Parada, 3; *Zacatecas*, Berriozabal, 12, Monte Escobedo, 1.

***Peromyscus xenurus* sp. nov.**

Type from Durango, Durango, Mexico. Adult female, No. 94,518, U. S. National Museum, Biological Survey Collection, July 1, 1898, E. W. Nelson and E. A. Goldman.

Characters.—Similar in size and proportions to *P. melanophrys*; ground color more nearly fawn than tawny; pectoral spot well developed; tail black except a narrow ventral line of white; hind feet clouded with dusky.

Color.—Type, in fresh pelage except on rump: Ground color of upper parts grayish fawn color, gradually becoming more grayish anteriorly, so that with the strong mixture of black through it all the effect from the middle of the back forward passes from mixed fawn color through drab to hair brown; the rump, which is still in worn pelage, is fawn color; lower cheeks bright fawn color blending with gray, which covers most of the face from the base of the ears forward to the nose; under parts white except patch of bright fawn color extending from bases of forelegs across breast; hind feet clouded with dusky brown to base of toes, which are creamy white; tail black all around except a narrow stripe of white on the under side occupying scarcely more than one-fifth of the entire surface of the tail except distally, where, the diameter of the tail being very slight, it nearly covers the under side.

Skull.—Similar in general to that of *P. m. consobrinus*; nasals noticeably shorter; anterior palatine foramina shorter; postpalatal notch shorter and wider.

Measurements.—The type and one adult topotype: Total length, 246–248; tail vertebrae, 142–140; hind foot, 28–28. Skull: Greatest length, 30; basilar length of Hensel, 23.8; zygomatic width, 115.5; interorbital width, 4.9; nasals, 10.2; upper molar series, 4.9; palatine slits, 5.7 x 2.3.

Remarks.—This species is easily distinguished from any other of the *melanophrys* group by the combination of large pectoral spot, dusky hind feet, and peculiar tail with only a narrow line of white on the under side instead of the usual equal division of the light and dark. It is the northernmost form of the *melanophrys* group, and at present is only known from two specimens from one locality, so there is doubtless much to be learned in regard to its distribution.

***Peromyscus zelotes* sp. nov.**

Type from Querendaro, Michoacan, Mexico. Old female, No. 50,430, U. S. National Museum, Biological Survey Collection, August 8, 1892, E. W. Nelson.

Characters.—Size about the same as *P. levipes* (hind foot, 23); tail slightly longer than head and body; ears relatively about same size as in *melanophrys*; color almost exactly as in *P. melanophrys*; skull similar in general to that of *P. melanophrys* but much smaller.

Color.—Similar to that of *P. melanophrys*, but facial region more suffused with tawny and the gray very much reduced; somewhat similar to *P. levipes* but paler throughout; no trace of a pectoral spot.

Skull.—Similar in general to that of *P. melanophrys* but much smaller; auditory bullæ slightly smaller; nasals shorter, interorbital space relatively wider; supraorbital beads obsolete; postpalatal notch narrow.

Measurements.—Type (old ♀): Total length, 218; tail vertebræ, 115; hind foot, 23. Skull: Greatest length, 28.3; basilar length of Hensel, 21.6; zygomatic width, 14.2; interorbital width, 4.9; nasals, 10.6; upper molar series, 4.6; palatine slits, 5.6 x 2.4.

Remarks.—This species appears to be closely related cranially to *P. melanophrys*, but differs markedly from the other forms of the group in its small feet and short tail. It requires no serious comparison with *P. levipes*, which has a widely different skull, with low shallow braincase, posteriorly compressed nasals, small bullæ, etc. Besides three from the type locality, one rather imperfect specimen from Tula, Hidalgo, seems referable to *zelotes*. It is somewhat brighter colored and differs slightly in cranial characters.

Peromyscus banderanus vicinior subsp. nov.

Type from La Salada, Michoacan, Mexico. Adult male, No. 126,503, U. S. National Museum, Biological Survey Collection, March 23, 1903, E. W. Nelson and E. A. Goldman.

Distribution.—Known from three localities in the State of Michoacan to the eastward of the range of typical *P. banderanus*.

Characters.—Darker than *P. banderanus*; skull narrower and anterior palatine foramina differently shaped; otherwise similar.

Color.—Slightly darker and more vinaceous than in *banderanus* in worn or summer pelage; decidedly darker in winter pelage, with a definite dusky median dorsal area; markings about eyes, whiskers, and ankles, sooty black instead of brown as in *banderanus*; upper side of tail sooty instead of brownish.

Skull.—Similar to that of *banderanus*, but braincase averaging slightly narrower; anterior palatine foramina more nearly elliptical, being widest in the middle and narrowing toward each end.

Measurements.—Type: Total length, 216; tail vertebræ, 107; hind foot, 27. Average of 3 young adults from La Huacana, Michoacan, 233; 117; 24.5. Skulls of two adults: * Greatest length, 31–32; basilar length of Hensel, 23.3–24.1; zygomatic width, 14.3–14; interorbital width, 5–4.8; nasals, 11.8–12.4; interparietal, 3.7 x 10.2–4.5 x 10.2; upper molar series, 4.6–4.4; palatine slits, 6 x 2.3–5.8 x 2.3.

Remarks.—This is an interior form of *banderanus*, only slightly characterized but not entirely negligible. Two specimens taken in February at Los Reyes, Michoacan, present the fullest and newest pelage and show a

* Measurements mentioned first are those of the type.

considerable departure from typical *banderanus*. The small series from La Salada have uniformly narrow skulls, noticeably narrower than in *banderanus*, but specimens from Los Reyes and La Huacana indicate that this is not a stable character. It seems, however, to be worth mentioning.

Specimens examined.—Total number, 15, from localities in Mexico as follows: Guerrero, Acahuizotla, 3; Michoacan, La Huacana, 4, La Salada, 6, Los Reyes, 2.

***Peromyscus banderanus angelensis* sp. nov.**

Type from Puerto Angel, Oaxaca, Mexico. Adult female, No. 71,442, U. S. National Museum, Biological Survey Collection, March 13, 1895, E. W. Nelson and E. A. Goldman.

Characters.—Similar to typical *P. banderanus*, but slightly larger; skull with supraorbital bead nearly obsolete instead of being well developed.

Color.—Almost exactly as in *P. banderanus*; possibly averaging a trifle darker.

Skull.—Larger than in *banderanus*; braincase less elongate and interparietal shorter; nasals longer; supraorbital edges reduced to simple shelves, much as in *P. melanophrys*, without an elevated bead bounded by a sulcus on the inner side; molar teeth slightly larger than in *banderanus*; auditory bullæ about as in *banderanus* and *aztecus*, much smaller than in *melanophrys*.

Measurements.—Type: Total length, 235; tail vertebræ, 123; hind foot, 26.5. Average of 7 adult topotypes, 235 (222–258); 120 (112–128); 27 (26.5–28). Skull.—Two adults: Greatest length, 31.3*–33.4; basilar length of Hensel, 23.4–24.9; zygomatic width, 15–15.4; interorbital width, 5.2–5; nasals, 11.7–12.8; interparietal, 3.6 x 10.6–3.4 x 11.2; upper molar series, 4.6–4.6; palatine slits, 6 x 2.4–5.7 x 2.4.

Remarks.—The naked soles of this form decide its affinities with *banderanus*, and its color is also in accord, but its skull with the supraorbital beads nearly obliterated suggests that of *P. aztecus*. Close examination of detailed characters of the skull, however, leaves scarcely any room for doubt that its proper position is with *banderanus*.

Specimens examined.—Total number, 22; 20 from the type locality and 2 from Pluma, Oaxaca.

***Peromyscus mexicanus teapensis* subsp. nov.**

Type from Teapa, Tabasco, Mexico. Adult female, No. 100,022, U. S. National Museum, Biological Survey Collection, March 25, 1900, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. m. totontepecus*, but sides brighter and more contrasted with dark area in middle of back; skull with thicker, heavier rostral region.

* Measurements mentioned first are those of the type.

Color.—Type: Sides rich chestnut shading into a well-defined blackish area in median dorsal region; a narrow black orbital ring and spot at base of whiskers; under parts slate color overlaid with creamy white (no pectoral spot in type, but of frequent occurrence among series of topotypes); tail black except a few irregular spots of yellowish white on under side; fore feet white; hind feet white except a dark brown area extending, and decreasing in width, from ankles down nearly to base of toes.

Skull.—Similar to that of *totontepecus*, but with broader nasals and generally heavier and more thickened rostral region; anterior palatine foramina usually wider; infraorbital part of zygoma rather heavier than in *totontepecus*, but not squarely 'elbowed' as in *mexicanus*; teeth about as in *totontepecus*, wider and heavier than in *mexicanus*.

Measurements.—Average of 10 adults from the type locality: Total length, 245 (234–254); tail vertebrae, 129 (121–136); hind foot, 28 (27–28.5). Skull of type: Greatest length, 33; basilar length of Hensel, 24.6; zygomatic width, 16.2; nasals, 12.7; interorbital constriction, 5.4; palatine slits, 6 x 2.9; upper molar series, 4.5; bony palate, 4.7; diastema, 8.2; postpalatal length, 11.9.

Remarks.—Represented by a series of 17 specimens containing a good percentage of adults and showing very little variation. Two specimens from Montecristo, Tabasco, are decidedly paler, much as in true *mexicanus*. The form is not strongly marked, but ranks well with the others of the same group, which is a difficult one. The vicinity of Teapa, visited by Nelson and Goldman in the spring of 1900, is already well known for the dark, rich color of the animals found there. The present subspecies is no exception.

***Peromyscus yucatanicus badius* subsp. nov.**

Type from Apazote, Campeche, Mexico. Adult female, No. 108,016, U. S. National Museum, Biological Survey Collection, December 28, 1900, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. yucatanicus* but darker colored.

Color.—Decidedly darker than *P. yucatanicus*, having a median dorsal area with a strong admixture of black and more or less black on the sides except a narrow lateral line which is cinnamon rufous like the general ground color; under parts faintly suffused with yellow; a narrow black orbital ring; hairs of tail blackish brown above, white below; under side of tail beneath hairs chiefly yellowish white, but somewhat irregularly blotched with dusky; feet white.

Skull.—As in *P. yucatanicus*.

Measurements.—Average of 10 topotypes: Total length, 193.4; tail vertebrae, 96.7; hind foot, 23.5. Skull of type: Greatest length, 28.2; basilar length of Hensel, 20.7; zygomatic width, 14.1; interorbital constriction, 4.7; interparietal, 9.2 x 3.1; nasals, 10.4; bony palate, 4.2;

palatine slits, 5.3 x 2.2; diastema, 7; postpalatal length, 9.9; upper molar series, 4.1.

Remarks.—This slight form doubtless owes its dark color to its habitat in a more humid region than that of true *yucatanicus*. Its range is probably limited to the region of the base of the peninsula of Yucatan, as its nearest relatives known from west of that region are the larger and quite different forms of the *mexicanus* group.

Specimens examined.—Total number 19, all from the type locality.

***Peromyscus allophylus*, sp. nov.**

Type from Huehuetan, Chiapas, Mexico. Adult female, No. 77,657, U. S. National Museum, Biological Survey Collection, February 21, 1896, E. W. Nelson and E. A. Goldman.

Characters.—Size medium (hind foot 25); tail shorter than head and body; ears moderate, scantily haired; coloration dark; tail dusky blackish, unicolor, covered with small imbricate scales, much as in *Oryzomys*; proximal third of soles of hind feet finely haired; skull rather long and narrow; teeth very small.

Color.—Sides mummy brown, deepening toward middle of back, causing a rather distinct median dorsal line of blackish brown; under parts yellowish white over slate-color, the latter showing through; tail dusky blackish, unicolor; a black orbital ring and antorbital spot; feet whitish, scantily haired; ankles dusky.

Skull.—Rather long and narrow; braincase elevated; infraorbital notch scarcely evident; nasals rather short, slightly exceeded by premaxillæ; no supraorbital ridge; palatine foramina rather large, longer than bony palate; auditory bullæ small, smaller than in *aztecus* or *mexicanus*; molar teeth very small; interparietal small.

Measurements.—Type: Total length, 202; tail vertebræ, 95; hind foot, 25. Skull: Greatest length, 29.8; basilar length of Hensel, 22.5; zygomatic width, 14.5; interorbital constriction, 5; nasals, 11; bony palate, 4; palatine slits, 6 x 2.4; diastema, 8.2; postpalatal length, 10.5; upper molar series, 4.

Remarks.—It is difficult to be certain what are the affinities of this peculiar species. But for the size of its ears and shortness of its tail, it might well pass for an *Oryzomys* of the *O. chapmani* group. Its dark, scaly tail immediately suggests *Oryzomys*, and the character and color of its pelage bear out the resemblance. Its skull, however, is that of an ordinary type of *Peromyscus* without any striking characters. It seems probable that its closest relationship is with the *mexicanus* group, though it might easily be a northern member of some Central American group not yet known. It agrees in some respects with the description of *P. gymnotis* Thomas, from Guatemala. Another species from southern Chiapas agrees with this description much more closely, however, and for present purposes has been assumed to be identical with true *gymnotis*.

***Peromyscus lophurus* sp. nov.**

Type from Todos Santos, Guatemala. Adult male, No. 77,219, U. S. National Museum, Biological Survey Collection, December 30, 1895, E. W. Nelson and E. A. Goldman.

Characters.—Most similar to *P. lepturus*, but smaller and paler; tail long and covered with comparatively long soft hairs, and terminating in a distinct pencil; pelage soft and 'woolly' and rather dull and lusterless; skull with large interparietal and short nasals.

Color.—*Type*: General effect of upper parts between wood brown and fawn color, with a small dusky area in middle of back; lateral line pale ochraceous buff; under parts white; no pectoral spot; tail sepia brown, unicolor; forearm dusky to wrist, fore feet white; hind feet dusky brownish to base of toes; toes white; orbital ring dusky black, rather narrow, but expanded into a distinct spot in front of eye.

Skull.—Similar to that of *lepturus*, but smaller and with rostral part decidedly shorter; molar teeth actually about same size, relatively larger; interparietal very large. Compared to that of *P. levipes*, the skull of *lophurus* is shorter, with shorter nasals and heavier infraorbital region; the teeth are decidedly heavier and longer and the interparietal larger.

Measurements.—Average of 4 adult topotypes: Total length, 208; tail vertebræ, 105; hind foot, 24.5; ear from notch, 16. Skull of type: Greatest length, 27.5; basilar length of Hensel, 20.8; zygomatic width, 14.7; interorbital constriction, 4.3; interparietal, 10 x 4.5; nasals, 10; bony palate, 4; palatine slits, 5.4 x 2; diastema, 6.5; postpalatal length, 9.6; upper molar series, 4.7.

Remarks.—This very distinct species may be easily recognized by its crested tail and usually by the absence of white on the under side of the tail. All the specimens from Todos Santos have unicolor tails, but 2 from Calel are quite distinctly bicolor, and among 4 from San Cristobal, 2 have unicolor and 2 imperfectly bicolor tails, indicating that this character is not invariable. The character of the pelage differs somewhat from most of the smaller species of *Peromyscus* in being dull and soft without the usual gloss, and although rather short it is fine and slightly 'woolly.'

Specimens examined.—Total number, 15, from localities as follows: Pinabete, Chiapas, Mexico, 5; San Cristobal, Chiapas, Mexico, 4; Calel, Guatemala, 2; Todos Santos, Guatemala, 6.

***Peromyscus simulatus* sp. nov.**

Type from Jico, Vera Cruz, Mexico (altitude 6000 feet). No. 55,028, U. S. National Museum, Biological Survey Collection, July 12, 1893, E. W. Nelson.

Characters.—A miniature of *P. lophurus* (hind foot 21); dark markings lightly more intense; skull and teeth very small; tail clothed with long, soft hairs and crested as in *lophurus*; audital bullæ relatively large.

Color.—Almost exactly as in *P. lophurus*; dark markings of feet and face slightly more intense; tail chiefly brown, but with a narrow line of white on under side.

Skull.—Size very small; similar in general to that of *P. lophurus*, but with more inflated braincase and depressed rostrum; audital bullæ relatively larger; interorbital constriction relatively wider; teeth very small.

Measurements.—Type: Total length, 169; tail vertebæ, 87; hind foot, 21; ear from notch, 14.3. Skull: Greatest length, 24.4; basilar length of Hensel, 18; zygomatic width, 12.5; interorbital constriction, 4.3; interparietal, 8.2 x 3; nasals, 9; bony palate, 3.5; palatine slits, 4.6 x 1.7; diastema, 6; postpalatal-length, 8; upper molar series, 8.9.

Remarks.—This small species is not closely related to any known species except *P. lophurus*, of which it is almost an exact miniature. Its skull is even smaller than that of *P. melanotis*, which occurs in the same region. It has, however, no relationship whatever to *melanotis*. Its small size, crested tail, and dark brown feet are amply sufficient to distinguish it from all other known species.

***Peromyscus melanocarpus* sp. nov.**

Type from Mount Zempoaltepec, Oaxaca, Mexico (altitude 8000 feet). Young adult, No. 68,610, U. S. National Museum, Biological Survey Collection, July 8, 1894, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. megalops*, but smaller and darker colored; hind feet slightly darker; fore feet decidedly more so, the blackish extending to base of digits; tail usually dusky all around or with only traces of paleness beneath; pelage long and soft.

Color.—Ad. ♂ No. 68,627, July 17: General effect of upper parts dark blackish mummy brown, slightly darker along middle of back; actual color of subterminal zone of hairs cinnamon rufous, which is almost lost in the general effect by the many black-tipped hairs and the dark plumbeous undercolor which shows through the thin subterminal zone; under parts deep blackish slate washed with creamy white, producing an effect which varies from olive gray to slate gray; pectoral region usually rich cinnamon rufous; an intense black line extending from nostrils through base of whiskers and eye; tail covered with short, bristly, blackish hairs scarcely paler below than above; scales of tail usually dusky all around, sometimes with slight irregular patches of paler; fore and hind feet dusky brownish to base of toes.

Skull.—Apparently very similar to that of *megalops*; nasals slightly shorter and more compressed posteriorly; superficially similar to *toton-tepecus*, but differing as follows: nasals shorter and nearly always ending in advance of the orbits about on a plane with the infraorbital foramen; frontal wider and with decidedly greater development of supraorbital shelves; braincase wider; anterior palatine foramina much longer; molar teeth larger.

Measurements.—Type (not quite adult): Total length, 241; tail vertebrae, 125; hind foot, 27. Ad. ♂ from Totontepec, Oaxaca: 262; 132; 30. Skull of type: Greatest length, 31.6; basilar length of Hensel, 24.3; zygomatic width, 15.2; nasals, 12; interorbital constriction, 5.4; palatine slits, 7.3; upper molar series, 5.

Remarks.—This mountain species is about the size of *P. m. totontepecus*, with which it ranges to some extent, but is much more closely related to *megalops* and *auritus*, as indicated by its cranial characters and its more bristly tail. Its most diagnostic character, however, is the extent of dusky brownish on the fore feet, which is almost unique. In some specimens the ends of the toes and the outer side of the metacarpus are the only parts not occupied by the dark color. The pelage is long and lax like that of many other mountain forms. The type was taken at 8000 feet altitude. Five additional specimens from Totontepec on the north slope of the same mountain at 6500 feet altitude are also in the collection. *P. lepturus*, which also occurs on Mt. Zempoaltepec, is smaller than *melanocarpus* and differs in numerous cranial characters, among the most obvious of which are: Braincase smaller and narrower, interorbital constriction narrower, nasals shorter, supraorbital beads less developed.

***Peromyscus atilaneus* sp. nov.**

Type from Todos Santos, Guatemala (altitude 10,000 feet). Adult male, No. 76,856, U. S. National Museum, Biological Survey Collection, December 30, 1895, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. melanocarpus*, but smaller and with shorter and less hairy tail; fore feet entirely white; hind feet with much more white than in *melanocarpus*; skull slightly smaller and more slender; similar to *guatemalensis* but much smaller.

Color.—As in *melanocarpus*, but tail blotched with yellowish white below, much as in *mexicanus*; fore feet and part of forearm white; hind foot with a V-shaped dusky mark extending from ankle about half way to the base of the toes, remainder of foot white; pectoral spot strongly developed in type.

Skull.—Similar to that of *melanocarpus*, but slightly smaller throughout; nasals relatively more expanded anteriorly; braincase slightly higher and more inflated and rostral region more depressed; anterior palatine foramina shorter; infraorbital plate very narrow.

Measurements.—Type: Total length, 228; tail vertebrae, 115; hind foot, 28. Skull: Greatest length, 31; basilar length of Hensel, 24; zygomatic width, 14.6; interorbital constriction, 5; nasals, 11.5; bony palate, 4.8; palatine slits, 6 x 2.7; diastema, 8.2; postpalatal length, 11.2; upper molar series, 4.6.

Remarks.—The type of this species is the only specimen known at present. Its only close relationship is with *P. melanocarpus*, to which it is very similar except in regard to the color of the wrists and fore feet. From *P. lepturus* it differs in darker color, strongly developed pectoral

spot, shorter, less hairy tail, and in the following cranial characters: Parietals larger and wider, with suggestions of a bead at orbital edges; braincase more inflated; infraorbital plate much narrower; audital bullæ smaller; teeth smaller. It resembles *guatemalensis* superficially, but is so decidedly smaller as to require no serious comparison with that species.

Subgenus **Haplomyiomys** Osgood.

***Peromyscus goldmani* sp. nov.**

Type from Alamos, Sonora, Mexico. Adult female, No. 96,340, U. S. National Museum, Biological Survey Collection, December 19, 1898, E. A. Goldman.

Characters.—Similar in general to *P. eremicus anthonyi*; size larger (hind foot 24 in type); pelage somewhat coarser; color more fulvous and more uniform; heel slightly hairy; tail long and cylindrical, covered with short hairs; skull relatively heavy and rather elongate.

Color.—Entire upper parts and sides ochraceous buff finely mixed with black, much darker and richer than in *anthonyi* and without the grayish cast usually so characteristic of the *eremicus* group; under parts creamy white with a small ochraceous buff pectoral spot.

Skull.—Larger, longer, and narrower than in *eremicus* or *anthonyi*; braincase relatively much narrower; nasals longer and more compressed posteriorly; interorbital constriction narrow; bony palate rather short.

Measurements.—Type: Total length, 217; tail vertebrae, 117; hind foot, 24. Skull of type: Greatest length, 27.3; basilar length of Hensel, 21.1; zygomatic width, 14.2; interorbital constriction, 4; interparietal, 8.6 x 3.2; nasals, 9.6; bony palate, 4.2; palatine slits, 5 x 2.1; diastema, 6.6; postpalatal length, 10; upper molar series, 4.

Remarks.—The color of this species is more like that of *P. spicilegus* than *P. e. anthonyi*, but its skull and teeth show it to be a member of the *eremicus* group.

***Peromyscus eremicus phæurus* subsp. nov.**

Type from Hacienda La Parada, San Luis Potosi, Mexico. Adult female, No. 50,438, U. S. National Museum, Biological Survey Collection, August 20, 1892, E. W. Nelson.

Geographic distribution.—Middle portion of the Mexican tableland in the States of San Luis Potosi, Zacatecas, and Nuevo Leon.

General characters.—Similar to *P. eremicus* but darker, with tail uniform blackish brown above and below instead of decidedly bicolor as in *eremicus* or indistinctly bicolor as in some specimens of *P. e. anthonyi*.

Color.—Similar in general to *eremicus*, but shades of buff deeper and entire upper parts much more heavily mixed with black; under parts except tail white; pectoral spot not present; tail blackish brown above and below, this most evident in winter pelage, when the hairiness of the tail is best developed; feet white, ankles dusky.

Skull.—Practically as in *eremicus* and *anthonyi*.

Measurements.—Average of 9 adults: Total length, 189 (176–195); tail vertebræ, 98 (92–103); hind foot, 21.

Remarks.—This form is the southernmost representative of the *eremicus* group. Its range is practically continuous with that of *eremicus*, which extends from west Texas down through Chihuahua, but it is cut off by mountain ranges from *anthonyi*, which, curiously, it most closely resembles. The extreme form of *anthonyi* from southern Sonora occasionally has the distal third of the tail black all around, and thus very much resembles *phæurus*. This is probably an accidental parallelism, as is also shown by some specimens of *fraterculus* which are strikingly like *anthonyi*, although there is even greater isolation in this case.

Specimens examined.—Total number, 27, from localities in Mexico, as follows: Coahuila, Sabinas 2, Saltillo 2; San Luis Potosi, Aqualulco, 2, Hacienda la Parada, 7, Jesus Maria, 7; Nuevo Leon, Doctor Arroyo, 5; Zacatecas, Canitas, 2.

Subgenus **Baiomys** True.

Peromyscus musculus nigrescens subsp. nov.

Type from Valley of Comitán, Chiapas, Mexico. Adult female, No. 76,827, U. S. National Museum, Biological Survey Collection, December 9, 1895, E. W. Nelson and E. A. Goldman.

Characters.—Similar to *P. musculus* and *P. m. brunneus*, but darker and more sooty; skull slightly characterized.

Color.—Upper parts mixed vandyke brown and sooty blackish, slightly more sooty on middle of back; under parts cream buff, to roots of hairs in middle of belly, on tips only at sides; tail dusky above, paler below.

Skull.—Slightly smaller and more elongate than in *P. musculus* and *P. m. brunneus*; braincase narrower; rostrum longer; palatine slits longer and bony palate correspondingly shorter; interorbital space narrower.

Measurements.—Average of 10 adult topotypes: Total length, 115.5 (113–120); tail vertebræ, 43 (40–45); hind foot, 15 (14.5–16). Skull of type: Greatest length, 20.1; basilar length of Hensel, 15.2; zygomatic width, 10.5; interorbital constriction, 3.4; nasals, 8; interparietal, 6.4 x 2.1; palatine slits, 4.3; bony palate, 2.8; upper molar series, 3.2.

Remarks.—This very dark colored mouse is represented by large numbers of specimens from southern Oaxaca, Chiapas, and parts of Guatemala.

Peromyscus allex sp. nov.

Type from Colima, Colima, Mexico. Adult female, No. $\frac{23422}{4545\frac{1}{2}}$, U. S. National Museum, Biological Survey Collection, March 7, 1892, E. W. Nelson.

Characters.—Color as in *P. musculus*; size decidedly smaller; skull small, light, and slender.

Color.—Exactly as in *P. musculus*.

Skull.—About equal in size to that of *P. taylori*; braincase narrower and more elongate; decidedly smaller than in *P. musculus*: nasals very short; audital bullæ very small; molar teeth small.

Measurements.—Type: Total length, 113; tail vertebræ, 47; hind foot, 14; ear from notch (dry), 9.7. Average of 6 topotypes: 104; 44; 13.4. Skull of type: Greatest length, 18.4; basilar length of Hensel, 14.6; zygomatic width, 9.6; interorbital constriction, 3.2; nasals, 6.3; interparietal, 5.5 x 1.3; palatine slits, 3.7; bony palate, 3; upper molar series, 3.

Remarks.—This diminutive species occurs with *P. musculus* at Colima, the type locality, and at other localities in western Mexico. It is represented chiefly from the States of Colima and Jalisco, but its range has not been thoroughly worked out and it seems quite possible that it may be found over a considerable area. Apparently it is closely related to *P. paulus*,* the description of which indicates an animal of about the same size but of different color.

*Allen, Bull. Am. Mus. Nat. Hist., XIX, pp. 598-599, November 12, 1903.